this article to pass in silence, and think that the pages of NATURE, in which already there has appeared a good deal relative to the supposed infection of animal tissues by green unicellular Algæ, offer the most fitting place in which to lodge a protest against the reception of Mr. Hamann's conclusions as reasonable.

In the first place, Mr. Hamann has not made himself acquainted with previous writings on this subject. He briefly states that "R. Lankester disputes" the algal nature of the green corpuscles suggested by Brandt, and the existence of a cell-nucleus in them, and refers the reader to a paper by me on "Symbiosis of Animals with Plants," which has no existence. Mr. Hamann has not read the article to which he refers, which appeared in the *Quart. Journ. Microsc. Sci.* April, 1882, and was entitled "On the Chlorophyll Corpuscles and Amyloid Deposits of Spongilla and Hydra." Mr. Hamann has accordingly failed altogether to take up the points of importance in the discussion. These seem to me to stand somewhat as follows: It had already been urged (1) that the green corpuscles of Hydra multiply by fission; (2) that they possess each one or more cell-nuclei; (3) that they possess a cell-wall comparable to the cellulose wall of a unicellular Alga; (4) that starch is developed within them even after their removal from the living Hydra. It had been inferred (by Semper, and later by Brandt) that consequently these corpuscles must be considered as unicellular Algæ.

To these considerations I had replied in the article above named, by describing carefully the nature of the "fragmentation," or division of the chlorophyll corpuscles of both Hydra and Spongilla. I cited the notorious fact with regard to the chlorophyll corpuscles of plants, namely, that they multiply by fission. I showed further, by description and figures, that *there is not any structure present in the chlorophyll corpuscles of either Hydra or Spongilla which is comparable to a cell-nucleus or to a cell-wall*, and that the ascribing of such parts to the chlorophyll corpuscles of Hydra is *totally erroneous*.

I further insisted that we are not acquainted with any unicellular Algæ at all resembling the chlorophyll corpuscles of Hydra, whilst the chlorophyll corpuscles of plants closely resemble them,—and finally I pointed out that there is as much reason to regard the chlorophyll corpuscles in the leaf of a buttercup as unicellular Algæ as there is so to regard those of *Hydra viridis*.

Mr. Hamann does not in any way deal with these observations, but naïvely remarks, after describing his observation of the already-known multiplication by division of the chlorophyll corpuscles of Hydra, "after these observations the nature of our green corpuscles as Algæ seems to me to be firmly established." This seeming can only arise from the fact that Mr. Hamann is not acquainted with the characteristics either of Algæ or of the chlorophyll corpuscles of plants.

A simple assertion that a nucleus and a cell-wall are present in the chlorophyll corpuscles of Hydra is all that Mr. Hamann gives us on this head; although his paper is illustrated by a plate, no nucleus and no cell-wall are figured by him. Were he able to adduce good evidence of the existence of either of these structures, the view which he has advocated would be materially advanced. But this he is unable to do, because such structures do not exist.

Mr. Hamann offers some observations on the occurrence of chlorophyll-corpuscles in the egg-cell of Hydra which lead him to assume that these corpuscles enter the egg-cell by "wandering" from the endoderm-cells. The figures and statements which he makes do not, in my opinion, tend necessarily to that conclusion.

Lastly, I would point out that the exceedingly variable form of the chlorophyll-corpuscles of Hydra and Spongilla which I have illustrated by figures in my memoir above cited, is not noticed by Mr. Hamann. This variability is quite inconsistent with the view that they are parasitic Algæ. So also is the fact that these corpuscles are represented by colourless corpuscles in the colourless varieties of Spongilla and Hydra which turn green when treated with sulphuric acid.

It should be distinctly borne in mind that it is by no means necessary, supposing that the green corpuscles of Hydra are parasitic Algæ, that a nucleus should be present in them, nor indeed a well defined cell wall. But when the presence of such structures is asserted as evidence that these corpuscles are different in nature from the otherwise closely similar corpuscles formed in the protoplasm of green plants, the question of the actual presence or absence of the nucleus and cell-wall becomes important, and must be definitely decided upon thorough histological evidence.

So far it appears to me, as I have previously maintained, that there is no more and no less evidence for considering the green corpuscles of *Hydra viridis* as parasitic Algæ, than there is for taking a similar view with regard to the green corpuscles in the leaf of an ordinary green plant.

E. RAY LANKESTER

NOTES

WE regret to notice that in Tuesday's papers the death of Prof. Henry Draper of New York is telegraphed. We hope to be able to refer to his work in an early issue.

THE Council of the British Association have nominated Mr. A. G. Vernon Harcourt, M.A., F.R.S., to the office of General Secretary of the Association, in the room of the late Prof. F. M. Balfour.

MARINO PALMIERI, whose death we announced a fortnight ago, must not be confounded with his father, Luigi, the eminent director of the Vesuvius Observatory, who we are glad to be able to say is alive and well.

THE death is announced, on November 11, of Dr. Franz Ritter von Kobell, Professor of Mineralogy and keeper of the mineralogical State collections at Munich, well known through his numerous mineralogical publications. He died at the age of seventy-nine years.

M. JANSSEN has been sent to Oran to observe the transit of Venus from a physical point of view.

WE have received a circular in reference to the visit of the British Association in Montreal, containing the results of the recent meeting in that city, to which we have already referred. It is evident that the Canadians are determined to do all in their power to make the visit of the Association a success. "The city of Montreal, which has a population of about 150,000 souls has," the circular states, "twice entertained the American Association for the Advancement of Science; for the second time in August, 1882, when an attendance of more than 900 members and Associates was registered, and the Association, with its nine sections, found ample accommodation in the buildings of McGill University. The ordinary summer-passage is made in eight or nine days from Liverpool to Quebec, which city is connected with Montreal by two lines of rail, making the journey in six hours, and by river-steamers. From Montreal to Ottawa, the capital of the Dominion, is four hours by rail; from Montreal to Toronto, thirteen hours; and to Niagara Falls, sixteen hours by rail. Montreal is in direct connection with Boston by two lines of rail, by which the journey is made in ten hours. There are also two lines connecting Montreal with New York city in thirteen hours, and one with New Haven in sixteen hours. It is expected that the American Association for the Advancement of Science will hold its meeting in 1884 in New Haven, or some other eastern city of the United States, at such a time as may permit the attendance of members of the British Association, either before or after their gathering at Montreal. We have assurances that the Government of the Dominion of Canada will make a liberal grant of money to defray the expenses of members of the British Association in crossing the ocean, and that the various railroad and steamboat lines in Canada and in the United States will offer most liberal arrangements to our guests. The Grand Trunk Railway will arrange for an excursion of members of the Association to the Great Lakes and Chicago, while the Canadian Pacific Railroad will give an excursion to the provinces of the North-West, as far as the Rocky Mountains. It is believed that the British Association may count upon a large attendance of local members and associates both from the provinces of the Dominion and the United States. In any case, the Finance Committee are prepared to guarantee that the revenue from this source shall not fall below that ordinarily received by the Association. Members of the British Association in coming to Canada may be assured of a most cordial welcome and generous hospitality, not only from the citizens of Montreal, where every facility will be furnished for their meeting, but from the people throughout the country. It is hoped by the Invitation Committee that these assurances, and the above statement of the advantages and facilities offered them, may secure a large attendance of the members of the British Association at Montreal in 1884."

IN the sitting of the Academy of Sciences of November 20, M. Dumas read an *arrêté* from the Minister of Public Instruction, regulating the competition for the Volta Prize, which will be delivered in 1887. It is expressly decreed that the competition be open to every nation. A report will be made by the Commission *ad hoc*, and published *in extenso* in the *Journal Officiel.*

AT the meeting of the Paris Academy on Monday M. Dumas stated that at the very beginning of its work, the Academical Commission for the destruction of the Phylloxera proposed to arrange for the immediate destruction by fire of each plant proved to be infested. Objections were made to this scheme grounded on the state of French legislation on rural property, and the Academical Commission desisted. M. Dumas states that he has in hand an official report from Switzerland establishing the soundness of the views taken by the Academy on this important question. The cantons of Geneva, Vaud, and Lucerne having resorted to the destroying process, all the vines, of which the value exceeds 40,000,000*l*., had been saved at the expense of a few thousand pounds. A special tax had been imposed on the proprietors of vines for compensation to the owners of the destroyed plants.

A FIRST application has been made of the resolutions of the last Congress of Electricians proposing that regular observations should be made on earth currents during magnetical perturbation. The perturbations of November 17 have been accompanied in France by strong earth currents principally in the south-north direction. We may state, moreover, that others were observed on November 20, exhibiting a very great force.

LARGE electrical disturbances have been observed in Sweden and Norway during last week. On Friday last all telegraphic communication became for a time suspended, and at Stockholm and Jönköping central telegraph stations several instruments were destroyed. In Norway the electric storm was accompanied by thunder, a phenomenon almost unknown at this time of the year.

A LARGE and enthusiastic meeting was held on Saturday evening last, in Trinity College, Prof. Moseley, F.R.S., in the chair, when the following resolution was carried unanimously:—"That it is desirable that a society should be formed for the purpose of bringing together the Undergraduates and Bachelors of Arts of the University, who are engaged in the study of Natural Science, for the friendly discussion of scientific and other topics." The officers and members of the new club were elected, Mr. Bond, B.A., being elected president, and the first meeting will be held in the course of next week.

THE Rev. T. W. Webb writes to the *Times* as follows on the comet:—"As it must be universally admitted that the magnificent comet now receding from our sight is the most interesting, in a popular as well as scientific point of view, of any that have appeared for many years, will you allow me to add the record of a very remarkable phenomenon to the somewhat scanty details respecting its aspect which have as yet been laid before the public? In an extremely valuable letter received by me this morning from a very able and careful observer, Mr. J. T. Stevenson, of Auckland, it is stated that on October 6 and 10 an 'anomalous' tail was feebly but distinctly visible, pointing towards the sun. Your astronomical readers will remember that a similar 'glowing wake' attended the returning course of Newton's great comet in 1680, distinguished, like the present, by its close approach to the surface of the sun, and a few more cases might be cited. It is, however, of such infrequent occurrence, that another instance forms a valuable addition to our stock of information as to these mysterious bodies. I ought to mention that Mr. Stevenson's letter was despatched immediately after his last observation, so that we may hope that, with a climate and position of the comet giving him great advantage over northern astronomers, he may have been able to trace this singular appendage on subsequent occasions."

THE German Society for the Prevention of the Pollution of Rivers, the Soil, and the Atmosphere, held their fifth annual meeting at Brunswick on October 19 and 20 last, under the presidency of Prof. Reclam (Leipzig). The number of papers read was considerable and the attendance very large. Among the speakers were Burgomaster Rittmeyer (Brunswick), Prof. Müller (Berlin), Dr. Blasius (Brunswick), Dr. Engler (Stuttgart), Herr Knauff (Berlin), Dr. Gerson (Hamburg), Dr. Petri (Berlin), and Dr. Beckurts (Brunswick).

WE have received from Mr. J. P. Walker, C.E., Stirling, a communication on the Forth Bridge, but we can hardly venture to insert in our columns the descriptions of Mr. Walker's and other plans for such a bridge. The peculiarities of the plan drawn by Messrs. Fowler (chief engineer) and Baker, and the circumstance that it had been accepted by Commissions of Parliament and of the Board of Trade, gave it great claims on our attention, which can scarcely be recognised as applying to any other proposal.

THE Glasgow *Evening Times* has the credit of being the first daily paper, so far as we know, to introduce into its pages starmaps showing the aspect of the heavens at stated times. On November 11 it started with four such maps, and the series will be continued. There are full instructions as to the meaning and use of the maps, and we have no doubt they will be the means of leading many people to form a practical acquaintance with astronomy.

THE first number of the *American Journal of Forestry* bearing date October last has just reached us. It is edited by Franklin B. Hough, Ph.D., Chief of Forestry Division U.S. Department of Agriculture, and has as contributors an array of well known names connected with forestry matters in America. The journal in size and shape corresponds with the *Journal of Forestry* published in this country, and edited by Mr. F. G. Heath. It is not, however, so tastefully got up, though the printing and the character of the articles are very similar. The contents of the number before us, for instance, are, after the Editorial "Announcement," a paper on "Forestry in Michigan," one on "Larch Wood," one on the "Forestry of the Future," by the Editor, on "Forest Fires," on the "American Forest Congress," and the usual "Miscellany." The forests in America are so extensive and there is so much connected with them that belongs legitimately to the subject of forestry that we have no doubt the journal will meet with a wide circulation.

The Annual Report of the Public Gardens and Plantations in Jamaica for the year ending September 30, 1881, has just reached us, and from it we gain some idea of the work that is being carried on in the island under Mr. Morris's care in the dissemination of useful plants. It is satisfactory to find that of late years a considerable amount of attention has been directed to the extended cultivation of economic plants in all our Colonies, a branch of culture that must in the end prove of more lasting value to mankind generally than the growth of any mere horticultural novelty or scientific rarity. Mr. Morris's Report from beginning to end is a record of what can be done by a single establishment in the introduction of new plants and their distribution amongst planters in the several colonies. As an illustration of this Mr. Morris says "there is much activity displayed even by the poorest peasants in obtaining and cultivating new and important plants, and I cannot but hope, that before many years have elapsed this activity will result in the greater prosperity and wealth of the island, and in placing it in the first rank as exporter of fruit and raw materials to the markets of England and America." Regarding Jamaica in particular, Mr. Morris says: "It is evident that Jamaica must depend for its prosperity and success almost entirely on the resources and products of an agricultural character. We have no large stores of timber, we have no minerals, we have no manufacturing industries, and we cannot hope to struggle successfully with other countries in the more advanced arts and sciences. We nevertheless possess a rich and productive soil, a salubrious climate, abundant springs, and a vast extent of uncleared mountain land; and it is mainly on the due utilisation of these valuable natural resources that our prosperity must ultimately depend. Under these circumstances the chief aim of the Department has been directed towards bringing into notice the nature and character of such resources, and to fostering and promoting any well directed efforts for their utilisation. The position and prospects of several new industries, such as Liberian coffee, cacao, tobacco, oranges, mangoes, pine-apples, spices, india-rubbers, fibre-yielding plants, &c., are carefully noticed with this view, and the success which has already attended these comparatively recent efforts would indicate that capital and energy are alone wanting to place the island in an important position as to the source of most tropical productions." Naturally a good deal of attention has been paid to cinchona cultivation, and a large number of plants of the best varieties have been raised, seeds and plants having been distributed to private plantations, and sold in considerable quantities during the year. The cultivation of the jalap plant promises also to become one of considerable importance in Jamaica.

To give an idea of the dairy-industry in France, M. Hervé Mangon recently stated (at an agricultural gathering) that the milk produced in the country would, if collected, form a stream about 1 metre in width and 33 centimetres in depth (say 3 feet 4 inches and 1 foot 1 inch), flowing night and day all the year, with a mean velocity of a metre per second. Young animals drink a part of this enormous volume of milk, man takes a good part of it, and the rest is transformed into cheese and butter. No branch of agricultural industry has so progressed during the last fifty years as the making of butter. In 1833 France bought abroad 1,200,000 kgr. of butter, and sold to foreigners only 1,100,000 kgr. She now exports 34 to 35 million kgr. of butter annually, and receives in return from abroad (especially from England) a sum of more than 100 million francs. La Manche alone furnishes more than one-third of the total exportation.

A valuable investigation of the origin of metalliferous lodes, by Prof. Sandberger, of Würzburg, has recently been published at Wiesbaden. The various theories are discussed, more especially those of ascension, and of lateral secretion or levigation. Till 1873 the author was a partisan of the former, but he was led to make a chemical study of the gangues and lodes in the Black Forest, and by 1877 he had got so far as to obtain proof, for the greater part of the mining districts in Germany, that the lodes had been formed by levigation of the encasing rock. The second part of the work is elevated to a special study of the environs of Wild Schapbach in the Black Forest, as illustrating the theory of levigation. (An outline of these researches appears in *Archives des Sciences*, October 15.)

An improved feed-water heater and purifier has been recently described to the Franklin Institute by Mr. George Strong. It is said to effect a saving in coal of 22 per cent., and an increase of evaporation of 1·09 pounds of water per pound of coal. Considering that all substances likely to give trouble by deposition would be precipitated at about 250° F., he obtains this in the heater by action of exhaust steam, aided by a coil of live steam from the boiler. He also uses a filter formed of wood-charcoal, and-bone black firmly held between two perforated plates. (Further details will be found in the *Journal* of the Institute for November.)

It appears from the *Shen-pao*, a Chinese newspaper published at Shanghai, that the Chinese are taking practical steps in the matter of foreign education. A school for the education of Chinese boys in foreign matters has been established in the Pun-yen district of Canton, and it has already fifty scholars. So far the school has been a success, and to meet the requirements of the scholars it is proposed at the next Chinese New Year to solicit subscriptions to enlarge the school premises. The teachers are Chinese well versed in English, and the school bids fair to be followed by many others of a similar kind. A satisfactory circumstance about it is that the institution has been founded by the people themselves with official countenance or assistance, and that Chinese gentlemen competent to teach these schools are now to be found. European teachers and professors are of course absolutely necessary for a time; but their want of knowledge or imperfect knowledge of the language of the country must cause them to be make-shifts at the best.

Under the title of "Les Grandes Ascensions Maritimes." M. W. de Fonvielle has published (Paris, Ghio) a *brochure* giving an account of several balloon ascents over the ocean, including some, such as the late Mr. Powell's, which have come to grief by being driven into the sea.

The Tenth Annual Report of the Lambeth Field Club speaks hopefully of its condition; it seems to be doing good work.

The public dinner in celebration of the 100th anniversary of the first experiment at Annonay by Joseph Mongolfier was given on Saturday at Paris by the Académie d'Aérostation Météorologique. Three members of the Mongolfier family were present. Several speeches were given, and a general committee was appointed to organise a national celebration on June 5, 1883, the anniversary of the first public experiment at Annonay before the États Généraux du Forez.

The *Journal Officiel* states that the director of the Compagnie du Cap has given to the Paris Museum of Natural History a diamond weighing 4½ carats, enveloped in its native rock. It is supposed that this generous donation will determine the public authorities to send to the museum a part of the jewels of the French Crown, which are now kept in the Bank. The question of their sale has not yet been settled, in spite of several parliamentary and extra-parliamentary reports.

News from Perugia now states that the earthquake began on October 28 at 6 p.m., and with short interruptions lasted until

October 29 at midnight. A real panic is reigning among the population of Cascia. The extent of the zone of the phenomena cannot yet be ascertained, but it seems that the eruption of Mount Etna is closely connected with it. Several old houses fell at the first shock.

The additions to the Zoological Society's Gardens during the past week include a Bonnet Monkey (*Macacus radiatus*) from India, presented by Mr. A. S. Gissing; two Common Herons (*Ardea cinerea*), British, presented by Mr. R. H. Rabbetts; a Common Barn Owl (*Strix flammea*), British, presented by Mrs. A. Wright; a Slender-billed Cockatoo (*Licmetis tenuirostris*) from South Australia, deposited; two Red-billed Tree Ducks (*Dendrocygna autumnalis*) from America, a Zenaida Dove (*Zenaida amabilis*) from the West Indies, purchased; a Hairy-rumped Agouti (*Dasyprocta prymnolopha*) from Guiana, received on approval.

BIOLOGICAL NOTES

Apparent Bird-tracks by the Sea-Shore.—At a recent meeting (October 3) of the Academy of Natural Sciences of Philadelphia, Mr. Thomas Meehan called attention to what appeared to be the tracks of a three-toed bird in the sand near low water-mark, at Atlantic City. These tracks were of a nature that would be readily recognised by observers as bird-tracks; but while thinking of what bird could have caused them, and reflecting on the phenomenon of their being only found on the sand near low water-mark, Mr. Meehan noted on the face of the smooth, receding waves, spots where the water sparkled in the light, and he found this was caused by little riplets as the wavelets passed down over the half-exposed bodies of a small crustacean (*Hippa talpoidea*), and that the water, in passing over the bodies made the trifid marks which had been taken for impressions of bird's feet. These little crustacea take shelter in the sand near low water-mark, and enter head foremost in a perpendicular direction downwards, resting just beneath the surface. The returning wave took some of the surface sand with it, and then the looser portions of the bodies uppermost in the sand were exposed. Often the little creatures would be quite washed out; when recovering themselves, they would rapidly advance in a direction contrary to the retreat of the wave, and would enter the wet sand again as before, their sides being parallel with the shore. Their bodies terminate in a caruncular point which, with the position of the two hind-legs, offer a tridentate obstruction to the sand brought down by the retreating wave, and the water passing round the points made the three toe-like grooves, which resembled a bird's foot from one and a half to two inches long. The crustacea, in their scrambles for protection beneath the sand, managed to keep at fairly regular distances from each other, and hence there was considerable regularity in the tracks, as if they had really been produced by birds. Although the author of these notes presented them as a trifle, yet it will be at once apparent that they are of great interest. Trifid impressions like these, filled with mud and the deposit then to become solid rock, would puzzle, if not altogether mislead, future observers.

Australian Freshwater Sponges.—Up to this date, but one species of freshwater sponge has been described from Australia, *Spongilla capewelli* of Bowerbank; but Mr. W. A. Haswell, at a meeting of the Linnean Society of New South Wales (May 31, 1882) describes two new species from a pond near Brisbane, and one from the River Bell at Wellington. *Spongilla sceptroides* is a green, smooth, encrusting species, with the skeletal spicules very slightly curved, acute at both ends, ornamented with very minute projecting points. The statoblasts are spherical, defended by long, slender, straight, cylindrical spicules, which are armed with numerous acute spinules, chiefly collected around the extremities, forming heads; it is found growing on submerged twigs. *S. botryoides* is a yellowish flat-encrusting species, with curved skeletal spicules, fusiform, acute, with scattered, extremely minute, projecting points. Statoblasts protected by a crust of short, strongly-curved spicules, with heads at each end of numerous short, blunt, or sub-acute spines, somewhat botryoidal-like, the shaft smooth. This species was found with the first: another species fonnd by Mr. E. P. Ramsay in the Bell River, growing on masses attached to submerged timber seems nearly related to *S. Meyeni*, from Bombay. In colour it varies from a grass green to a yellow. It is massive, lobulated, with oscula between the projections. The skeleton spicules are perfectly smooth, and the amphidiscs are provided with from one to ten acute and prominent spines. Another species from somewhat deep water is indicated by Mr. Haswell.

Earth-worms in New Zealand.—The following interesting observations form part of a communication from Mr. A. T. Urquhart, to the editor of the *New Zealand Journal of Science*, and appear in the September number of that periodical. In October, 1875, I dug a trench on some newly-cleared land—a raised beach at Manukau Harbour. The section then showed about 4½ inches of black mould and a horizontal layer, 1 inch thick, of burnt clay, wood-ashes, small stones, and pumice lying on a brownish-green arenaceous clay. The vegetation cleared was the growth of some thirty years. A portion of the land was left undisturbed. Measurements again taken a few days ago gave an average depth of 1¼ inches of turf, 5¾ inches of black mould, and there was no perceptible difference in the layer of ash. An angular block of Trachyte—about twenty-five pounds in weight—placed in May, 1875, had sunk 1 inch, allowing for the turf. As the results of some accurate calculations, as to the number of worms per acre, Mr. Urquhart gives results so considerably higher than Henson's, that he would have hesitated to publish them, were he not in a position to prove them. Henson, it will be remembered by the readers of Darwin on "Vegetable Mould," calculates that there are 53,767 worms per acre in garden mould, and above half that number in corn-fields. Mr. Urquhart's estimates, founded on digging about a quarter of an acre, as well as by a large number of tests on various parts of the fields, some that were under pasture for over sixteen years, gave from four to twenty-six earth-worms per each square foot. The alluvial flats, slopes, and richer portions of the upper lands would average eight to the square foot or say 348,480 per acre. In the uncultivated fern lands worms are scarce. In New Zealand worms not only leave their burrows, but climb up trees in search of food, this chiefly in the night time, though often until a late hour on damp warm mornings.

The Genesis of the Hypophysis in Petromyzon Planeri.—Prof. Anton Dohrn, of Naples, writes:—"In his contributions to the history of development of the Pertromyzons (*Morphol. Jahrbuch*, vol. vii. p. 158), Mr. W. B. Scott says: 'The organ of smell is one of the most peculiar parts of the whole organisation of the Cyclostoms. . . . . The position of the organ is a symmetrical from the very beginning. It first begins to manifest itself as a shallow depression above the mouth, which we may regard as a common depression for the nasal cavity and the hypophysis. The ectoderm covering the head becomes suddenly thickened at one spot, in order to form the special smell sense epithelia which lie close to the front extremity of the brain. The cells at the bottom of the depression decrease in depth, while the cells that cover the opposite wall of the depression (*i.e.* the continuation of the upper lip) are very low.' Balfour ("Comp. Embryology," vol. ii. p. 358) makes the following criticism upon this statement:—"I have not myself completely followed the development of the pituitary body in Petromyzon, but I have observed a slight diverticulum of the stomodaeum, which I believe gives origin to it. Fuller details are in any case required before we can admit so great a divergence from the normal development as is indicated by Scott s statements." According to researches which I made this summer, the question is solved, but in a way different from either Balfour's or Scott's suggestions. The hypophysis arises rather as an independent depression of the ectoderm between the depressions for the nose and the mouth. Its connection with the nasal depression is only secondary, and is caused by the strong and early development of the upper lip. It has no connection with the mouth depression, because the upper lip develops between the mouth depression and the hypophysis. The particulars of these relations will appear in the next number of the "Studies in the Early Development of Vertebrates" in the *Proceedings* of the Zoological Station at Naples (*Zool. Anzeiger*, November 6, 1882).

Formic and Acetic Acid in Plants.—Dr. Bergmann sums up the results of his investigations as to the occurrence and import of formic and acetic acids in plants as follows:—1. Formic and acetic acids are met with as constituents of protoplasm throughout the whole of the vegetable kingdom in the most various portions of the plant-organism, and both in chlorophyllaceous and non-chlorophyllaceous forms.